

Application Serial No. 10/812,795
Reply to Office Action of December 31, 2007

PATENT
Docket No. CU-3674

REMARKS/ARGUMENTS

Reconsideration is respectfully requested.

Claims 2, 5, 7, 8, 10, 12, 14-16, and 19 are pending in the present application before this amendment. By the present amendment, claims 10 and 19 have been canceled without prejudice, and claims 2, 12, 14, and 16 have been amended. No new matter has been added.

In the office action (page 6), the examiner rejected claims 2 and 5 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Publication No. 2003/0223008 (Kim) in view of U.S. Patent No. 5,233,379 (Burnham) and U.S. Patent No. 6,738,570 (Shinohara). The "et al." suffix is omitted in a reference name.

The applicants respectfully disagree.

The presently claimed invention provides an air hole in the cover member and a ventilation channel in the lens unit so that heat generated during the process of assembling the compact camera module can escape. Air expansion is thereby avoided by the presently claimed invention. By forming the compact camera module in this manner, it is possible to mount the module directly to a mounting board using a reflow process (specification page 16, lines 9-15).

The applicants recognize the examiner's arguments on page 4 of the office action. The applicants also thank the examiner for his response to the applicant's arguments on office action page 4 [0009], in which the examiner commented on the usage of "cutout of the lens" rather than "cutout in the lens." However, as the examiner notes in the office action page 3 [0007], the specification is one source from which the claims are

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interpreted. When understood in light of the specification, the so called "cut-out" (holding frame 6; Shinohara FIG. 10) which the examiner references in the office action (page 7-8) as teaching the presently claimed invention can in no way be interpreted as the --cutout-- characterized by the presently claimed invention (at least in the specification page 7, lines 3-27).

In any event, to avoid any further argument regarding the matter, the applicants have amended claim 1 in light of the examiner's response to the applicant's arguments. Claim 1 now recites:

--wherein the ventilation channel is formed between a wall of a cutout in the lens and the lens holder and the ventilation channel extends at least from a top of the lens to a bottom of the lens--

The claims now clearly refer to a --cutout in the lens--, and now cannot be considered in any way comparable to something such as a holder of a lens.

In Burnham, the bores 54 are formed in a housing interior wall 56. The device of Burnham includes a flapper valve 64 to prevent air from flowing out of the air passage (Burnham col. 3, lines 52-54). Burnham as understood teaches away from the presently claimed invention in that Burnham is **restricting** the flow of air out of the air passage, while the present invention has a technique for allowing heat to escape its closed in space.

In the office action (page 3), the examiner notes that the feature of "permitting air flow out of the air passage" is not recited in the rejected claims. Accordingly, the applicants have added the limitation —to allow air to escape from the substantially closed space—. Burnham does not teach this aspect of the presently claimed invention, since (as noted above) Burnham restricts air flow from the air passage.

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As stated in the previous amendment (filed October 15, 2007), the flapper valve of Burnham would be quite detrimental if it were to be applied in the context of the present invention, as the present invention needs to allow heat generated during the process of assembling the compact camera module to escape. The inclusion of such a flapper valve of Burnham in the presently claimed invention would, of course, inhibit the escape of heat.

Additionally, Burnham does not recognize the problems identified and resolved in the present invention. As previously stated, the present invention is concerned with protecting the solid image pickup device from dust during the manufacturing process. By forming the closed in space, the presently claimed invention protects the solid image pickup device during the manufacturing process. However, when forming the device in a closed space, there becomes the problem of heat causing air expansion in the closed space. This is solved in the presently claimed invention through the air hole/ ventilation channel setup. None of Kim, Burnham, and Shinohara is concerned whatsoever with heat during the manufacturing process causing air expansion in the closed in area.

Additionally, the presently claimed invention includes a ventilation channel in communication with the air hole. The ventilation channel is formed --between a wall of a cutout in the lens and the lensholder--. Also, the applicants have added the limitation:

—the ventilation channel extends at least from a top of the lens to a bottom of the lens—

None of Kim, Burnham, and Shinohara teaches or suggests, inter alia, this element of the presently claimed invention. The structure of the presently claimed invention (as shown e.g. in FIG. 3A) is completely different from that of the cited prior art

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references. The applicants have added the above limitation to clearly claim differences.

The examiner points to the holding frame 6 of Shinohara FIG. 10 as the "cutout of the lens" in the presently claimed invention. As stated above, cutout of the lens has been amended to recite --cutout in the lens--. The presently claimed invention uses the cutouts in order to easily form the ventilation channel without the extra work of processing (forming grooves, etc.) the lens holder. The cutouts 31a and 32a of the present invention are formed in the lenses.

In contradistinction, the "holding frame" the examiner points to in Shinohara is not a cutout in the lens. Shinohara's holding frame is instead a completely different portion, which holds the frame in place. For example, Shinohara's holding frame is not a cutout portion of the lens, but it is an arm that holds the lens in place.

Additionally, as can be seen in FIG. 10, the ventilation of Shinohara does not occur --between a wall of a cutout of the lens and the lens holder--. It instead occurs between a wall of a holding member (which holds the lens in place) and the peripheral wall 9e.

Finally, the applicants have amended claim 2 to recite --the ventilation channel extends at least from a top of the lens to a bottom of the lens--. FIG. 3A of the present invention clearly shows the ventilation channel 35 extending in this manner. None of the cited prior art references teach this element of the presently claimed invention.

Burnham, does not teach a ventilation channel as claimed in the presently claimed invention. In Shinohara, any ventilation channel is not formed between a wall of a cutout in the lens and the holder of the lens, and does not disclose a ventilation channel extending from a top to a bottom of the lens (see arrows in FIG. 10 of

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Shinohara; ventilation channel does not extend from a top to a bottom).

Additionally, the applicants note that claim 2 requires that the air hole be in communication with the ventilation channel. None of the cited prior art references teaches this aspect of the presently claimed invention.

As can be seen, not all the elements of claim 2 have been taught by the cited prior art references, since the prior art does not teach –the ventilation channel is formed between a wall of a cutout in the lens and a lens holder–.

Additionally, the present invention discloses different techniques (see amended claim 2) and comes to a different result than those taught or suggested by the cited prior art references (i.e., the air hole allows air to flow from the closed in space, which Burnham clearly teaches away from). Therefore, the presently claimed invention would not have been obvious to a person of ordinary skill in the pertinent art at the time of the invention. For these reasons, the applicants respectfully submit that claim 2 is allowable. An indication of allowable subject matter with respect to claim 2 is respectfully requested.

In the office action (page 9), the examiner rejected **claim 7** under 35 U.S.C. § 103(a) as being unpatentable over Kim in view of Burnham and Shinohara as applied to claim 2, and further in view of U.S. Patent Publication No. 2002/0167605 (Akimoto '605). In the office action (page 10), the examiner rejected **claim 8** under 35 U.S.C. § 103(a) as being unpatentable over Kim et al. in view of Burnham and Shinohara et al. as applied to claim 2, and further in view of U.S. Patent Publication No. 2002/0191103 (Akimoto '103).

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The applicants respectfully submit that these claims are allowable at least since they depend from claim 2, which is now considered to be in condition for allowance for the reasons above.

As to **claim 5**, the applicants respectfully submit that this claim is allowable at least since it depends from claim 2, which is now considered to be in condition for allowance for the reasons above.

In the office action (page 11), the examiner rejected **claim 10** under 35 U.S.C. § 103(a) as being unpatentable over Kim et al. in view of Burnham and Akimoto '103.

Claim 10 has been **cancelled** without prejudice.

In the office action (page 14), the examiner rejected **claim 12** under 35 U.S.C. § 103(a) as being unpatentable over Kim et al. in view of Burnham and Akimoto '103 as applied to claim 10, and further in view of Akimoto '605.

The applicants respectfully submit that this claim is allowable at least since it depends from claim 2, which is now considered to be in condition for allowance for the reasons above.

In the office action (page 15), the examiner rejected **claims 14 and 15** under 35 U.S.C. § 103(a) as being unpatentable over Shinohara et al. in view of U.S. Patent Publication No. 2003/0137595 (Takachi).

Claim 14 has been amended and now recites:

--a ventilation channel is formed between a wall of the cutout in the lens and the lens holder wherein the ventilation channel extends at least from a top of the lens to a bottom of the lens--

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Shinohara does not teach this element of claim 14 for the same reasons discussed above (does not teach cutout in the lens; does not teach ventilation channel extending from a top to a bottom). Accordingly, the applicants respectfully resubmit the corresponding arguments made for claim 2.

Neither Shinohara nor Takachi, considered individually or in combination, teaches or suggests the present invention of claim 14. An indication of allowable subject matter with respect to claim 14 is respectfully requested.

In the office action (page 17), the examiner also rejected claims 16 and 19 under 35 U.S.C. § 103(a) as being unpatentable over Kim et al. in view of Burnham.

Similar limitations to those incorporated into claim 2 are incorporated into Claim 16. Accordingly, the applicants resubmit the above arguments for claim 2.

Neither Kim nor Burnham, whether considered individually or in combination, teaches or suggests the present invention of claim 16. An indication of allowable subject matter with respect to claim 14 is respectfully requested.

Claim 19 is cancelled without prejudice.

For the reasons set forth above, the applicants respectfully submit that claims 2, 5, 7-8, 12, and 14-16, now pending in this application, are in condition for allowance over the cited references. Accordingly, the applicants respectfully request reconsideration and withdrawal of the outstanding rejections and earnestly solicit an indication of allowable subject matter. This amendment is considered to be responsive to all points raised in the office action. Should the examiner have any remaining

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questions or concerns, the examiner is encouraged to contact the undersigned attorney by telephone to expeditiously resolve such concerns.

Respectfully submitted,



Dated: March 31, 2008

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